

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number  
**WO 2005/071789 A1**

(51) International Patent Classification<sup>7</sup>: **H01Q 1/52**, 1/36, 1/38

(21) International Application Number: **PCT/SG2005/000014**

(22) International Filing Date: 20 January 2005 (20.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
200400539-3 26 January 2004 (26.01.2004) SG

(71) Applicant (*for all designated States except US*): **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH [SG/SG]**; 20 Biopolis Street, #07-01 Centros, Singapore 138668 (SG).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **CHENG, Zhining** [CN/SG]; Blk 518, Jurong West St. 52, #11-149, Singapore 640518 (SG).

(74) Agent: **AXIS INTELLECTUAL CAPITAL PTE LTD**; 21A Duxton Road, Singapore 089487 (SG).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

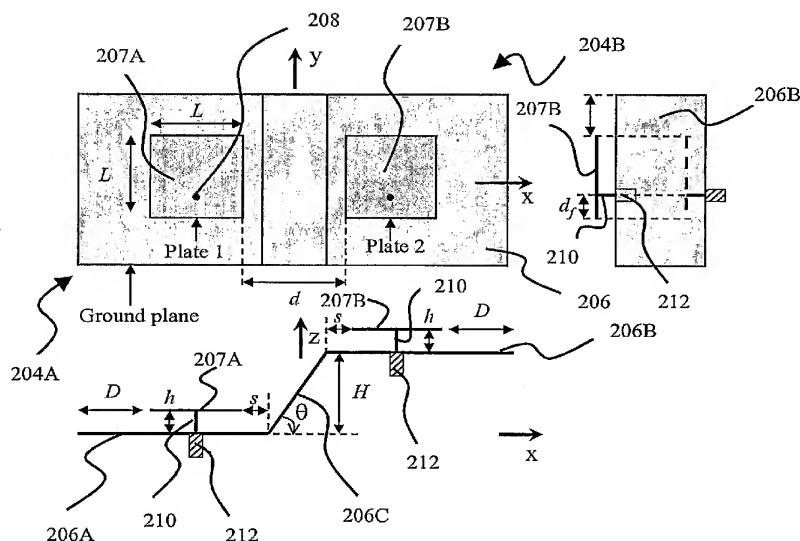
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: COMPACT MULTI-TIERED PLATE ANTENNA ARRAYS



WO 2005/071789 A1

(57) Abstract: An antenna array having a plurality of array elements is disclosed. The antenna array comprises a first array element (204A) having a first suspended radiator (207A) and a first ground conductor (206A), the first suspended radiator being displaced from the first ground conductor. The antenna also comprises a second array element (204B) being adjacent to the first array element, the second array element having a second suspended radiator (207B) and a second ground conductor (206B), wherein the second suspended radiator is displaced from the second ground conductor. In the antenna the first ground conductor is adjacent to and displaced from the second ground conductor and the first ground conductor is disposed on a first tier and the second ground conductor is disposed on a second tier to form an at least two-tiered ground conductor.



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*